

Blue

Ship Sept. 28

Work Order ID 61958

Monday, September 13, 2010 10:08:00 AM



Page 1

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Item Name: Crosstube Aft, Blue

Stop



Start Date: 9/13/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 9/24/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

V

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D206-667-243

C

100

0.00



DOCUMENT CONTROL

DC

0.00

Document Control

Memo

Photocopy bluefile and create labels as per PPP D206-667-203 CHG003

110

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

0.00

CNC Alpha 160 Bender

Memo

Bend tube as per Dwg D206-667-243 using CNC bender program D206-667-203

120

0.00



QC15- Crosstube Dimensional Check

QC

0.00

Quality Control

10/02/15

*Pho →
JF BG 10-9-28
10/02/15*

JX D MB 10-09-15

W/O: 61958		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
10/01/28	# 100	Perr. Change: Organize pick KX KX on w/o to be ^{in the} correct Secure to w/o.	MM	10-01-28			S 10/01/28

Part No: D206-667-203BL PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	
	QC:	Date:	SPC (Y/N):	Date:		Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130		0.00							
	Crosstubes								
Crosstubes	Memo	0.00							
Crosstubes	1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 and drill table DT8577 and tower holes #6 as per QSI0010 and as per Dwg D206-667-243. Drill all (3) top holes.								
	2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243 Check dimensions between holes on all four sides.								
	3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.								
	4-Drill pilot holes using drill Jig DT8583 & DT8584 as per Dwg D206-667-243. Drill only the top (2) holes.								
	5-Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243								
	6-Drill Fwd rivet holes using drill Jig DT8789FWD as per Dwg D206-667-143. Note: Fwd side has 3x top holes.								
	7-Drill Aft rivet holes using drill Jig DT8789 as per Dwg D206-667-243.								
	8-C'sink holes as per Dwg D206-667-243.								
	9 -Scribe part # and batch # using vibrating stylus as per Dwg D206-667-243 Inside of Cuff(Donot engrave on outside of tube)								
	10 -Deburr & Inspect for surface damage. Repair damage within limits as per								

MR SPAD
10-09-16

DP 10-9-20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
StampDwg
D206-667-243

140



Crosstubes Chemical Conversion

0.00

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

150



QC3- Inspect Part Finish

0.00

QC

Memo

0.00

Quality Control

160



QC5- Inspect part completeness to step on W/O

0.00

QC

Memo

0.00

Quality Control

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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

170



Outsource2

Operation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Outsource process - NDT per QSI038 4.1

0.00

CL 10/9/22 ①

Outsource process - NDT

Memo

0.00

Liquid Penetrant Inspection as per QSI 038Or
Issue P/O: 12615
LPI as per ASTM 1417
Level 2 Attach copy of NDT results to work order

180



Packaging

Packaging

0.00

CL 10/9/22 ①

Packaging

Memo

0.00

Ensure copy of NDT results attached to work order.

190



QC

QC5- Inspect part completeness to step on W/O

0.00

CL 10 09 22 ①

Quality Control

Memo

0.00

Ensure results are as per Dwg D206-667-243

W/O:		WORK ORDER CHANGES					
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Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

200

Operation
Description

SprayPaint

Set Up/
Run Hours

0.00

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

SprayPaint

Spray Painting

Printed: 110199

Memo

0.00

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube

DEFLEET BLUE B 113171CLEAR DELFLEET B 110896

PRIME:

Start Time: 9:00Finish Time: 10:00

PAINT:

Start Time: 2:00Finish Time: 3:00

210



QC

QC14- Inspect Spray Paint

0.00

Quality Control

Memo

0.00

Wrap in plastic bag to protect from scratches

M 10 09 22 ①

85 10 08 23 ⑩

W/O:		WORK ORDER CHANGES					
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Customer:

Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	
	QC:	Date:	SPC (Y/N):	Date:		Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

220



Crosstubes

0.00

Crosstubes

Memo

0.00

Crosstubes

1-Install nut plates as per Dwg D206-667-243.

ML 10 09 23 ①

230



Skidtubes

0.00

Crosstubes

Memo

0.00

Crosstubes

1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (3) top holes should be facing up.

A/R Magnobond 6398: 114158 exp. 01/2011

2-Install supports and clamps as per Dwg D206-667-243. Torque clamps to 80-100 in lb

ML 10 09 27

ML 10 09 23 ①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

240



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

8/10/09/27

0.00

(7)

250



Packaging

Packaging

Pick Kit

0.00

8/10/09/28(1)

Memo

0.00

260



QC

Quality Control

QC4- 100% Inspect kits for completeness

0.00

8/10/09/28

0.00

(1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Required Date: 9/24/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

270

Operation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Packaging

Packaging

0.00

Packaging

Memo

0.00

Identify and pack for shipping as per PPP D206-667-203

Location:

PPP Rev:

114

10/09/2010

280



QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

10/09/2010

MF
10-9-28

W/O:		WORK ORDER CHANGES					
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Picklist Print

Monday, September 13, 2010 10:07:59 AM

Page 1

Work Order ID: 61958



Parent Item: D206-667-203BL



Parent Item Name: Crosstube Aft, Blue

Start Date: 9/13/2010

Required Date: 9/24/2010

Start Qty: 1.00

Required Qty: 1.00

Comments:

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
AN5-10A		Purchased	No				Each	255.0000	10	10			
8													
Bolt													
				<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>				
				ST337			255						
				114752			5						
				115108			100						
				115429			50						
				115589			100						
AN5-32A		Purchased	No				Each	240.0000	4	4			
5													
Bolt													
				<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>				
				ST340			240						
				113121			4						
				114056			26						
				114405			50						
				115016			50						
				115108			50						
				115589			60						
AN5-34A		Purchased	No				Each	72.0000	4	4			
C													
Bolt													
				<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>				
				ST340			72						
				113149			22						
				113226			50						

113149

113226

Cross/Spa

114056

113121

115108

115429

115589

115016

115108

113149

113226

113121

114405

115016

115108

115589

W/O:		WORK ORDER CHANGES					
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Page 2

Work Order ID: 61958



Parent Item: D206-667-203BL



Parent Item Name: Crosstube Aft, Blue

Start Date: 9/13/2010

Required Date: 9/24/2010

Start Qty: 1.00

Required Qty: 1.00

AN9601D516

NAS1149D0563J Purchased

No

Each

34.0000

18

18



m114742 L



Washer

	<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
	ST	34	
	103694	18	
	107534	12	
	109287	4	

D206-667-203TRN

Manufactured

No

Each

4.0000

1

1



MB 10-09-14

Crosstube Turning Detail

	<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
	LG	4	
	61446	1	
	61447	1	
	61448	1	
	61449	1	

D2873-043

Manufactured

No

Each

32.0000

2



ML 10-09-23

Nut Plate Assembly

	<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
	LG	12	
	57337	12	
	ST	20	
	60981	20	

W/O:		WORK ORDER CHANGES					
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Parent Item Name: Crosstube Aft, Blue

Start Date: 9/13/2010

Required Date: 9/24/2010

Start Qty: 1.00

Required Qty: 1.00

D2873-045

Manufactured No

Each

28.0000

2

2

Nut Plate Assembly



ML 10-09-23

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG	28	
<u>57336</u>	8	
60982	20	

D2892-1

Manufactured No

Each

44.0000

2

2

Support



ML 10-09-23

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG	44	
41986	12	
42785	20	
53124	8	
55787	1	
<u>61631</u>	3	

ATTN: BLUE

D3595-063-450

Manufactured No

Each

131.6590

4

RUBBER CUSHION



ML 10-09-23

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG	131.6589737	
53775	5.97897368	
58161	3.56	
59580	10.12	
<u>60983</u>	33	
61465	79	

W/O:		WORK ORDER CHANGES					
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Parent Item Name: Crosstube Aft, Blue

Start Date: 9/13/2010

Required Date: 9/24/2010

Start Qty: 1.00

Required Qty: 1.00

MS20601-AD4W10

Purchased

No

Each

116.0000

14

14



RIVET

ML 10-08-23



<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

LG051	102	
-------	-----	--

114245
115405

2	
---	--

100	
-----	--

ST322	14	
-------	----	--

113220

14	
----	--

14	
----	--

Each	1,105.000	4
------	-----------	---



MS21042L5

Purchased

No

Nut

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

ST139	105	
-------	-----	--

114813

105	
-----	--

ST300	1000	
-------	------	--

115156

500	
-----	--

115594

500	
-----	--

Each	86.0000	4
------	---------	---



MS21920-22

Purchased

No

Clamp(per MIL-DTL-8783C)

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

LG	86	
----	----	--

114077

86	
----	--

W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries

8 7 6 5 4 3 2 1

Item	Qty	Part Number	Description
1	X	D206-667-243	CROSSTUBE ASSEMBLY (206L HIGH AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6004-115
FINISHED LENGTH = 104.91±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-243" AND BATCH NUMBER ON
INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 21.9 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY,
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER
QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE
D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE
LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

WDO 6/19/08

RELEASED
08/11/08

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-450 WAS D2856-400-773 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN A-3, C5-3, D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>9</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO. <i>D206-667-243</i> REV. C SHEET 1 OF 4	
CHECKED	<i>JP</i>	MFG. APPR. <i>EP</i>	
APPROVED	<i>JP</i>	TITLE <i>CROSSTUBE ASS'Y (206L HIGH AFT)</i> NTS	
DE APPR.	<i>JP</i>	DATE <i>08.11.06</i>	

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8 7 6 5 4 3 2 1

3 2 1

1

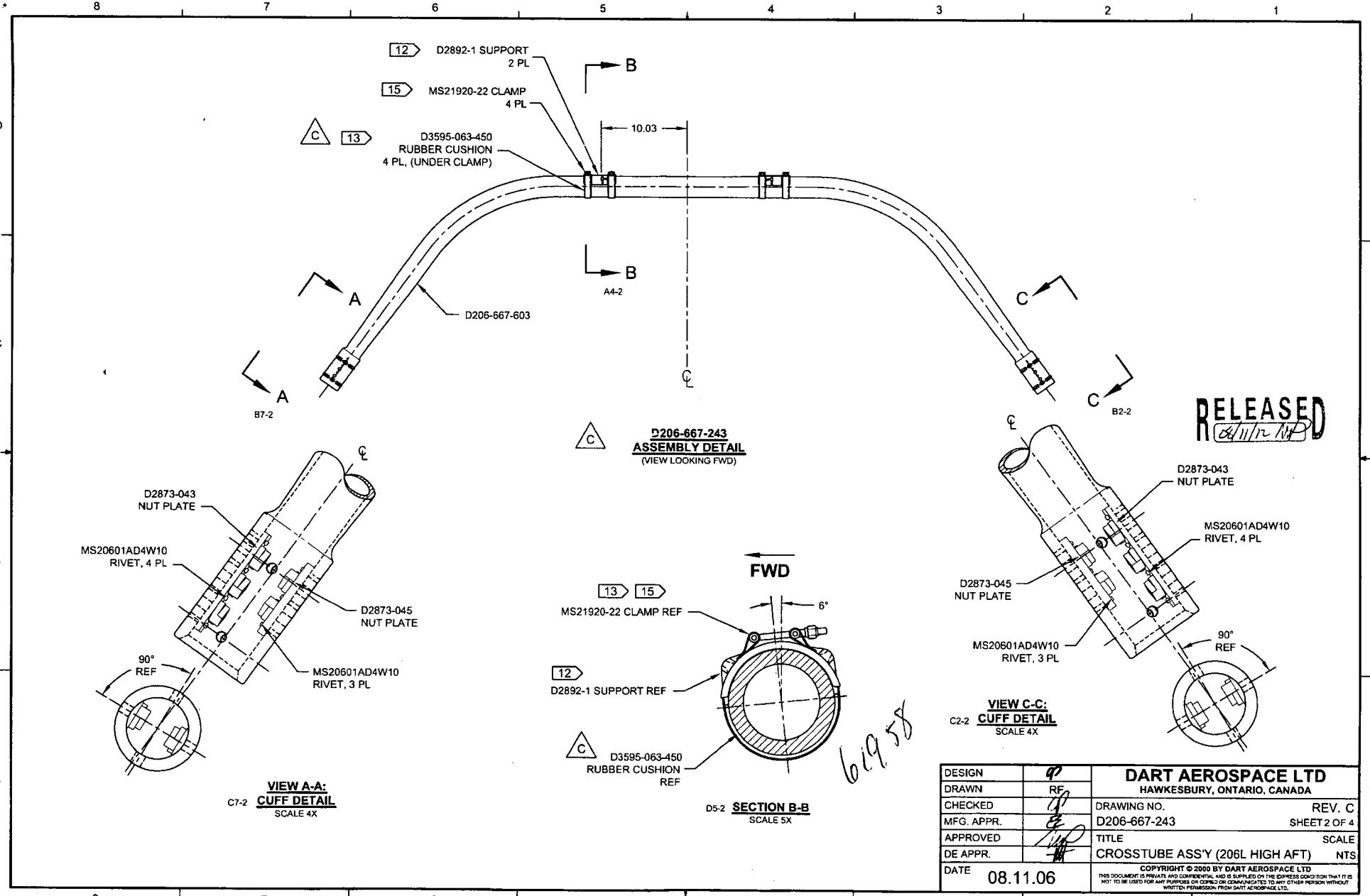
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



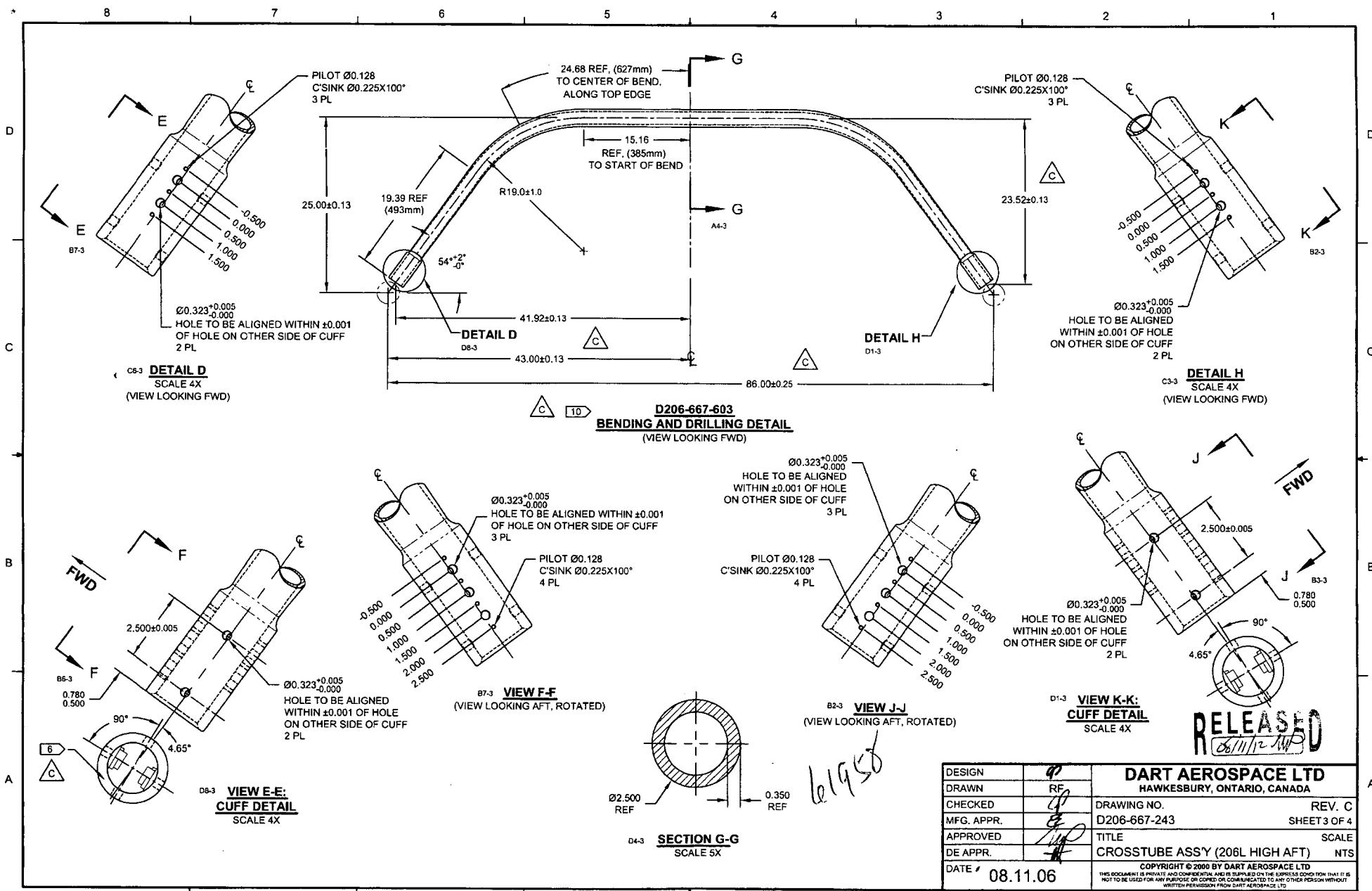
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN	<i>P</i>	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>CP</i>	DRAWING NO.	REV. C
MFG. APPR.	<i>E</i>	D206-667-243	SHEET 3 OF 4
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	CROSSTUBE ASSY (206L HIGH AFT) NTS	
DATE	08.11.06		

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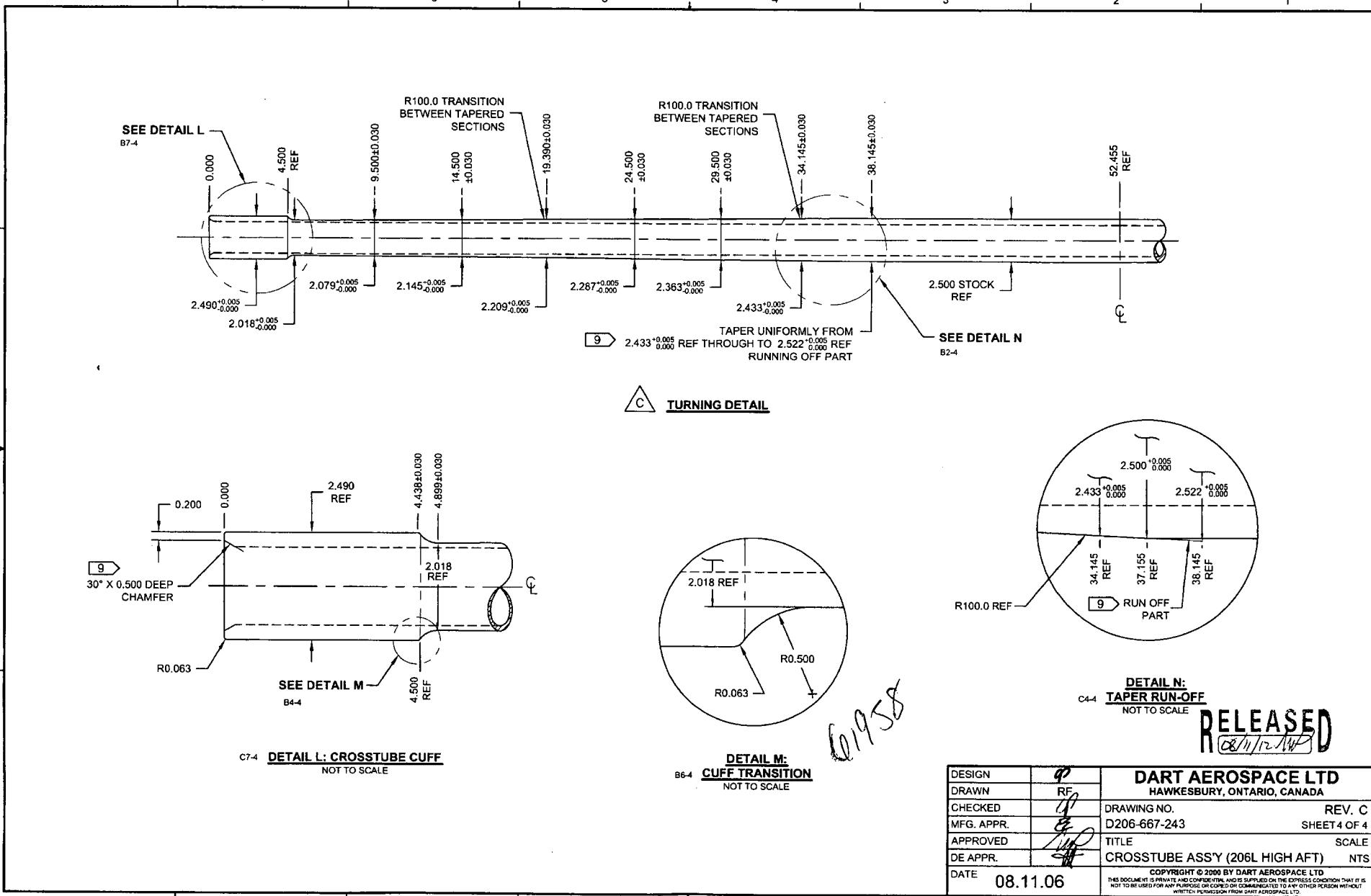
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN	Q	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	10	DRAWING NO.
MFG. APPR.	B	D206-667-243
APPROVED	S	REV. C
DE APPR.	S	SHEET 4 OF 4
DATE	08.11.06	TITLE
		CROSSTUBE ASSY (206L HIGH AFT) NTS
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(Signature)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval, QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD

Work Order: 61958

Description: Crosstube High Aft (206L)

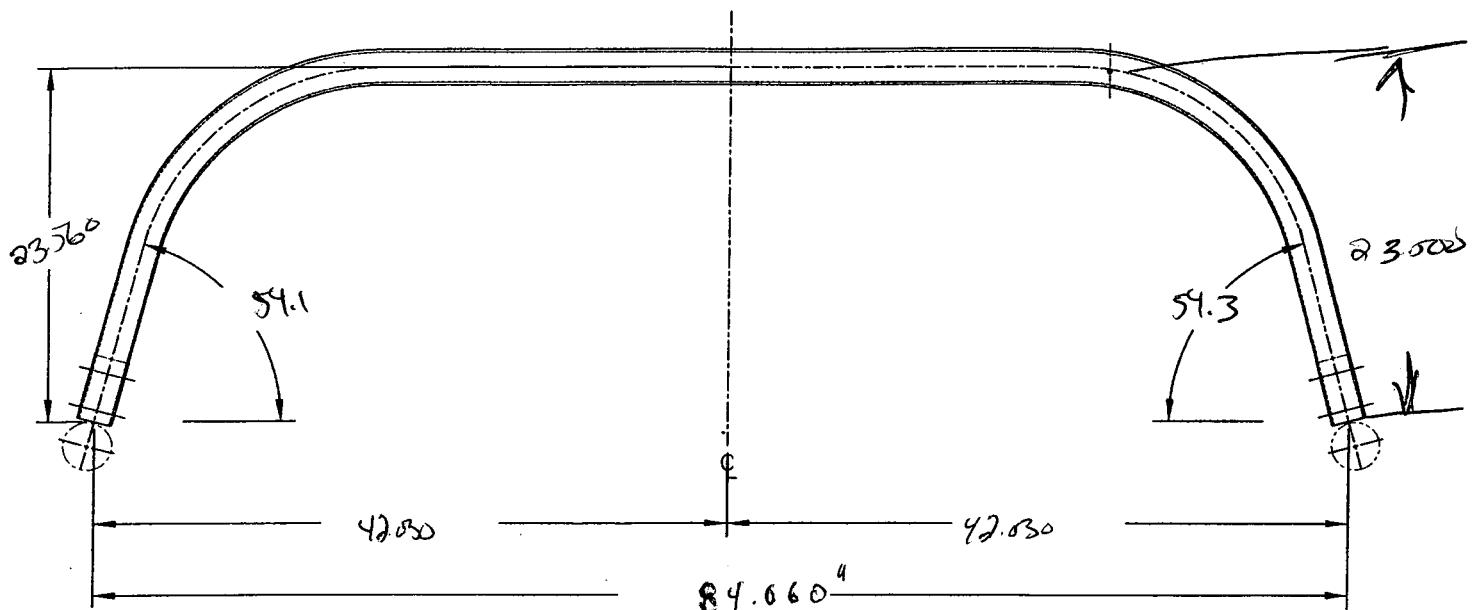
Part Number: D206-667-203

Inspection Dwg: D206-667-243

Rev: C

Page 1 of 1

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.1



Comments	

QC15 Inspection	S
Date	10/05/15

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.11.17	Dwg Rev updated	KJ	
C	09.12.14	Dimensions update per Dwg Rev C	KJ	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng./ Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



LIQUID PENETRANT TEST REPORT

P- 15193

CLIENT	<u>DAET Aerospace</u>	DATE	<u>SEPT-21-2010</u>	TIME	<u>AM <input checked="" type="checkbox"/> PM <input type="checkbox"/></u>	
ATTENTION	<u>LINDA / CHANTEL</u>	ACUREN JOB NO.	<u>188 - 10 - 0889</u>			
ADDRESS	<u>1270 ABDIEN ST.</u>	PO/WO NO.	<u>12615 -</u>			
PROJECT	<u>HAWKES BURY, ON.</u>	WORK LOCATION	<u>HAWKES BURY PLANT</u>			
ITEM(S) EXAMINED	<u>F. P. I. (10) ON CLASS TUBES & MACHINED PARTS</u>					ACCEPTANCE STD. <u>ASTM 1417</u> REV./DATE <u>2005</u>

JOB DESCRIPTION	PROCEDURE NO. LT0007 REV./DATE	TECHNIQUE NO. LT10042 REV./DATE
PART NO.	MATERIAL <u>STAINLESS STEEL</u> THICKNESS <u>2</u>	
SCOPE	<u>WET FLUORESCENT LIQUID PENETRANT + FLUORESCENT INSPECTION CARRIED OUT ON 100% EXTERNAL SURFACE</u>	

METHOD	<input checked="" type="checkbox"/> FLUORESCENT <input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH <input type="checkbox"/> SOLVENT REMOVABLE <input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND	<u>MAGNA FLUX</u>	BLACK LIGHT S/N <u>10459</u> <input type="checkbox"/> OUTPUT > 1000 $\mu\text{W}/\text{cm}^2$ <input type="checkbox"/> AMBIENT < 2 fc
PENETRANT	<u>ZL67</u>	MINIMUM DWELL TIME <u>45</u> MIN. <input type="checkbox"/> LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT <input type="checkbox"/> OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER	<u>H2O</u>	MINIMUM DRY TIME <u>>10</u> MIN. <input type="checkbox"/> OTHER <u>LAT 100</u>
DEVELOPER	<u>SKD 52</u>	MINIMUM DWELL TIME <u>10</u> MIN. <input type="checkbox"/> LIGHT METER S/N <u>1098866</u> CAL DUE DATE <u>OCT 11 2010</u>
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS <input type="checkbox"/> AQUEOUS <input type="checkbox"/> DRY	

SURFACE CONDITION	<input type="checkbox"/> AS GROUND <input type="checkbox"/> AS WELDED	<input checked="" type="checkbox"/> MACHINED <input type="checkbox"/> SHOT BLASTED	<input checked="" type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE	<input type="checkbox"/> < -4°C/ 20°F <input type="checkbox"/> -4°C/ 20°F TO 10°C/50°F	<input checked="" type="checkbox"/> 10°C/50°F TO 52°C/125°F	<input type="checkbox"/> > 52°C/125°F

RESULTS- <input checked="" type="checkbox"/> METRIC <input type="checkbox"/> IMPERIAL	
---	--

7 SLEEVE'S → W.O. 62188 ✓		
1 CROSS TUBE → W.O. 62298 ✓		
1 CROSS TUBE → W.O. 62299 ✓		
1 CROSS TUBE → W.O. 614 18 ✓		
1 CROSS TUBE → W.O. 614 17 ✓		
1 CROSS TUBE → W.O. 619 59 ✓		
1 CROSS TUBE → W.C. 619 58 ✓		
1 CROSS TUBE → W.O. 618 52 ✓	✓	INDICATIONS ON CROSS TUBES
1 CROSS TUBE → W.O. 618 53 ✓	✓	w.o. #'s → 61852, 61853.
1 CROSS TUBE → W.O. 615 07 ✓		
1 CROSS TUBE → W.O. 615 08 ✓		

Scope of Services
 The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care
 In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES		
CLIENT REPRESENTATIVE	<u>Eric Doering</u> PRINTED	SIGNATURE
TECHNICIAN (SIGNATURE):	<u>Mike Jefferson</u>	REPORT REVIEWED BY:
NAME (PRINT):	<u>Mike Jefferson</u>	NAME INITIALS
CGSB LEVEL	<u>E</u> SNT LEVEL	1 ST TECHNICIAN
CGSB REG. NO.	<u>6606</u>	2 ND TECHNICIAN
CGSB LEVEL	<u>E</u> SNT LEVEL	CGSB LEVEL
CGSB REG. NO.	<u>6606</u>	CGSB REG. NO.

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PINK - TECHNICIAN COPY

GOLD - OFFICE COPY

REFERENCE ONLY

5.0 PARTS LIST

Item	Qty -011	Qty -013	Qty -015	Qty -101	Qty -201	Qty -103	Qty -203	Qty -105	Qty -205	Part Number	Description
	X									D206-667-011	SPACER BLOCK KIT
	X									D206-667-013	NUT PLATE KIT (-101/-103/-105/-203/-205)
		X								D206-667-015	NUT PLATE KIT (-201)
			X							D206-667-101	CROSSTUBE INSTALLATION, 206A/B HIGH FWD
				X						D206-667-201	CROSSTUBE INSTALLATION, 206A/B HIGH AFT
					X					D206-667-103	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH FWD
						X				D206-667-203	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH AFT
							X			D407-667-105	CROSSTUBE INSTALLATION, 407 HIGH FWD
								X		D407-667-205	CROSSTUBE INSTALLATION, 407 HIGH AFT
1			1							D206-667-141	CROSSTUBE ASSEMBLY, 206A/B HIGH FWD
2				1						D206-667-241	CROSSTUBE ASSEMBLY, 206A/B HIGH AFT
3					1					D206-667-143	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH FWD
4						1				D206-667-243	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH AFT
5							1			D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH FWD
6								1		D407-667-245	CROSSTUBE ASSEMBLY, 407 HIGH AFT
10		*2	*2	*2			*2			D2891-1	SUPPORT
11						*2				D2892-1	SUPPORT
12								*1		D2894-1	SUPPORT
13		*2	*2	*2			*2			D2856-400-694	ABRASION STRIP
14							*2			D2856-400-773	ABRASION STRIP
15								*1		D2856-600-851	ABRASION STRIP
16		*4	*4	*4			*4			MS21920-20	CLAMP
17							*4			MS21920-22	CLAMP
18								*2		MS21920-24	CLAMP
19			4	4	4			4		AN5-32A	BOLT
20						4		4		AN5-34A	BOLT
21		4	4	4	4			4		MS21042L5	NUT (OR MS21042-5)
22			8	8	8		8	8		AN960JD516	WASHER
23									*2	D3190-1	CHAFING SHIELD
30	8									AN4-6A	BOLT
31	8									AN4-7A	BOLT
32	16									AN960JD416	WASHER
33	2									D3193-041	SPACER BLOCK ASSEMBLY
40	2		*2			*2	*2	*2	*2	D2873-043	NUT PLATE
41	2		*2			*2	*2	*2	*2	D2873-045	NUT PLATE
42		2		2						D2872-043	NUT PLATE
43		2		2						D2872-045	NUT PLATE
44	10		10		10					AN5-7A	BOLT
45	10	10		10			10	10	10	AN5-10A	BOLT
46	4	4	4	10	4			4		AN5-30A	BOLT
47	4						4		4	AN5-32A	BOLT
48	18	18	10	12	10		10	10	10	AN960JD516	WASHER
49	4	4			6					MS21042L5	NUT (OR MS21042-5)

*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/241/143/243, & D407-667-145/245 ASSEMBLIES ABOVE